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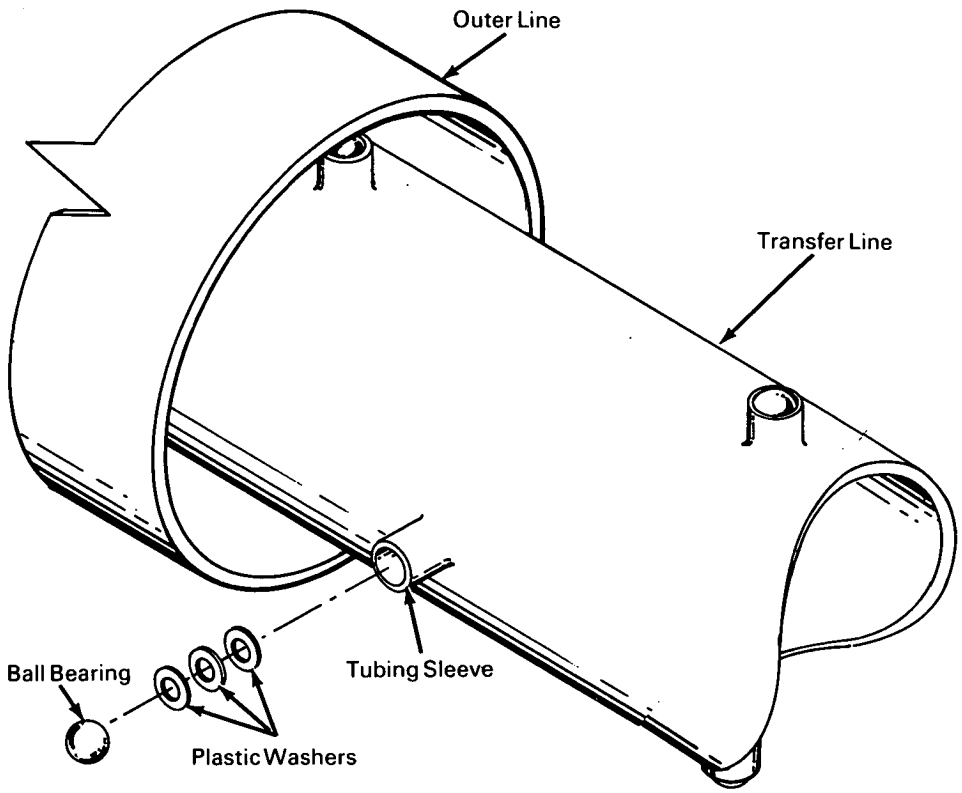
NASA TECH BRIEF

Vacuum-Jacketed Transfer Line Installation Technique



The problem:

In the installation of a vacuum-jacketed line, insertion of the line into its jacket has, in the past, been attended by dragging to the extent that spacer (standoff) deformation has resulted. What is needed is an inexpensive, low conductivity, low friction rate spacer that will enable smooth insertion of the transfer line into the outer line (jacket).

The solution:

Rolling-type spacers in the form of steel balls, retained in appropriate sleeves affixed at intervals to the exterior of the transfer line. These act as standoffs to position the transfer line concentrically within the vacuum jacket line.

How it's done:

Stainless steel sleeves are welded in an appropriate geometric pattern on the exterior of the transfer line and plastic washers inserted into them, followed by a stainless steel ball, seated so it makes positive contact with the interior surface of the vacuum jacket line as the transfer line enters it. Tolerances between ball, sleeve, and jacket afford relatively free movement of

(continued overleaf)

the transfer line laterally within the jacket without radial slop.

Notes:

1. Steel balls of 0.5- to 0.75-inch diameter should work well in applications involving transfer lines above 3 inches in diameter.
2. This development is in conceptual stage only, and, as of date of publication of this Tech Brief, neither a model nor prototype has been constructed.

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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